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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,314	06/27/2001	Phillip B. Blankenship	KOCH.84166	2106

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STINSON MORRISON HECKER LLP
ATTN: PATENT GROUP
1201 WALNUT STREET, SUITE 2800
KANSAS CITY, MO 64106-2150

EXAMINER
FULLER, ERIC B

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/893,314	BLANKENSHIP ET AL.	
	Examiner	Art Unit	
	Eric B Fuller	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 37-54* is/are pending in the application.

4a) Of the above claim(s) *1-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *37-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 28, 2004 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 37-47 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: making an interlayer on a roadway. The preamble of the claims read "a method of making an interlayer on a roadway". However, the limitations of the claims are only drawn selecting a mixture and do not making an interlayer on a roadway. Therefore, the claims are not commensurate in scope with the preambles of the claims, because the claims are missing essential steps.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 37-47 and 49-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helf (US 6,248,396 B1) in view of Walter (US 3,907,582) and Goodrich et al. (US 5,306,750).

Helf teaches a method of selecting an aggregate, selecting an asphalt, and selecting a polymer (column 2, lines 35-47), heating the asphalt to between about 150 and 200 degrees Celsius (column 7, lines 5-15), adding the polymer to the asphalt to form a binder, stirring the binder until said polymer is substantially dissolved, stirring the binder until a substantially homogeneous binder is formed, mixing the binder with the aggregate to form an interlayer (column 7, lines 55-57), and spreading the interlayer on the roadway. Helf additionally teaches the addition of cross-linking agents (column 5, line 65) and the high viscosity of the binder reads on low shear blending conditions. Helf additionally teaches the overlay (column 8, lines 55-63). As the mixture may be used as an interlayer or a may be the top layer, this reads on allowing traffic to drive on the interlayer.

The reference fails to teach performing stability and fatigue tests. However, Walter teaches that a Hveem stability test is used to determine the stability of an asphalt mixture so that it meets highway specifications and the results are effected by the

amount of asphalt in the mixture (column 2, lines 44-60). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize a Hveem stability test. By doing so, one is able to ensure that highway specifications are met. It would have been within the skill of one practicing in the art, through routine experimentation, to determine the amount of asphalt that is needed in order to achieve the maximum stability. This reads on using the stability test to design the interlayer.

Additionally, Goodrich teaches that Flexural Beam Fatigue test is used to determine the fatigue life of an asphalt mixture and that the results are effected by the amount of polymer in the mixture (column 11, lines 60-65). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize a Flexural Beam Fatigue test. By doing so, one is able to ensure a long fatigue life of the product. It would have been within the skill of one practicing in the art, through routine experimentation, to determine the amount of polymer that is needed to achieve the maximum fatigue life. This reads on using a fatigue test to design the interlayer.

In consideration of Walter and Goodrich together, one of ordinary skill would recognize that the relative amount of asphalt in the mixture affects the stability of the product and that the relative amount of polymer in the mixture affects the fatigue life of the product. Obviously, as the relative amount of asphalt is increased, the relative amount of polymer is decreased, causing a trade-off between flexibility and stability. It would have been within the skill of one practicing in the art, though routine

experimentation, to determine the composition of the mixture such that desired stability and fatigue are achieved. The routine experimentation reads on the applicant's claims.

As to claims 42-44, 53, and 54, Goodrich also teaches to determine the shear modulus, strain tolerance, bending creep, and rotational viscosity such that a good quality product is achieved (examples). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to determine these attributes. By doing so, a good quality product is achieved.

As to claims 46, 47, and 49, Wilson teaches cooling between layers and forming an overcoat with a thickness of 1 inch (column 4-41). To use these values in the process taught by Helf would have been obvious at the time the invention was made to a person having ordinary skill in the art. By doing so, one would have a reasonable expectation of success, as both references pertain to coating roads with an overlay.

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Helf (US 6,248,396 B1) in view of Walter (US 3,907,582) and Goodrich et al. (US 5,306,750), as applied to claim 45 above, and further in view of McDonald (US 3,891,585).

The references mentioned above teach the limitations to claim 45, but fail to explicitly teach sweeping the roadway and sealing cracks prior to applying the interlayer. However, McDonald teaches to sweep the roadway and seal the cracks prior to forming an asphalt/polymer layer on it (column 9, lines 18-41). This is done so that underlying fatigue cracking is not reflected in the new layer (column 7, line 12). Therefore, it would have been obvious at the time the invention was made to a person

having ordinary skill in the art to sweep and seal the cracks in the roadway of Helf. By doing so, the underlying fatigue cracks are not reflected in the new layer.

Response to Arguments

Applicant argues that since the fatigue and stability are inverse properties, one would not be motivated to optimize both properties. This is not found convincing. Properties being inversely proportional are often optimized together by engineers, such as pressure and volume in dealing with gases, cost efficiency and materials/energy used, etc. Optimization implies an inverse relationship, by maximizing a positive property (stability) while minimizing a negative property (loss of fatigue life) to achieve a desired result. If an inverse relationship did not exist, then there would be no reason to optimize a system, as the maximum would be sufficient. For the specific case, the prior art teaches a mixture having asphalt and polymer. The prior art teaches that as the relative amount of asphalt is increased, the stability is increased. Obviously, as the relative amount of asphalt is increased the relative amount of polymer is decreased. The prior art teaches that the fatigue is affected by the relative amount of polymer. Thus, the prior art explicitly teaches which components affect what property of the mixture. This is an explicit teaching of result-effective variables in the mixture. The courts have determined that it is obvious to optimize result-effective variables. See *In re Boesch,* 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Applicant argues that one would not look to Goodrich, Walter, or McDonald. This argument is not found convincing. These references pertain to asphalt and polymer

mixtures. This is relevant to the asphalt and polymer mixtures of the present invention and the primary reference.

The declaration of Phillip B. Blankenship under 37 CFR 1.132 filed June 28, 2004 is insufficient to overcome the rejection of claims because the statements "it is counterintuitive to test both stability and fatigue as one of ordinary skill in the art would assume that one must be sacrificed for the other" and "one of ordinary skill in the art would not be motivated to optimize both the stability and fatigue performance of an asphalt mixture... as such characteristics are considered opposite extremes" are statements of opinion, and not fact. The prior art teaches that there is a trade-off between stability and fatigue and teaches which component affects which variable. The fact that the properties are inversely proportional is even more motivation for one of skill in the art to determine the relative amounts of each component such that a sufficient amount of each property is achieved. To optimize only the stability would result in a mixture with no polymer, thus would destroy the teachings of the primary reference, which comprises both.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (571) 272-1420. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck, can be reached at (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EBF

SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700